

MASTER OF COMPUTER APPLICATIONS (CBCS - 2022 COURSE)
M.C.A. Sem-III : WINTER: 2025
SUBJECT: ARTIFICIAL INTELLIGENCE

Day : Monday
Date : 24/11/2025

W-26137-2025

Time : 10:00 AM-01:00 PM
Max. Marks : 60

NB :

1. Figures to the right indicate FULL marks.
2. Answer to both the sections should be written in the SAME answer book.
3. Section – II- Question 7 is COMPULSORY, it carries 10 marks. Attempt any ONE question from rest of the TWO questions in Section II, it carries 10 marks.
4. Section- I – Attempt any FIVE questions. Each question carries 08 marks.

SECTION - I

- Q. 1 What is Artificial Intelligence. State few objectives of AI. (8)
- Q. 2 Explain significance of production rules in case of knowledge representation. (8)
- Q. 3 Explain the working of Hill climbing to face issues of local maxima. (8)
- Q. 4 Discuss how knowledge can be represented using Rules. (8)
- Q. 5 Explain Monotonic and non monotonic reasoning in AI (8)
- Q. 6 Attempt ANY TWO of the following: (Short Answer) (4x2)
- a) Lambda Function
- b) Sematic Analysis
- c) Differences between supervised learning and unsupervised learning.

SECTION - II

- Q. 7 Solve following Crypt arithmetic (10)
- DONALD
+ GERALD

ROBERT
- Q. 8 Discuss and solve 8 Queens problem using CSP and Backtracking. (10)
- Q. 9 Write a python program to find second largest from the list (unsorted list) (10)

MASTER OF COMPUTER APPLICATIONS (CBCS - 2022 COURSE)
M.C.A. Sem-III : WINTER: 2025
SUBJECT: INFORMATION SECURITY

Day : Saturday
Date : 22/11/2025

W-26138-2025

Time : 10:00 AM-01:00 PM
Max. Marks : 60

N.B.

- 1) Section I - Attempt **ANY FIVE** questions. Each question carries 08 Marks.
- 2) Section II - Attempt **ANY TWO** questions. Each question carries 10 Marks
- 3) Figures to the **RIGHT** indicate **FULL** marks.
- 4) Answers to both the sections should be written in **SAME** answer book.
- 5) Draw neat and labeled diagram **WHEREVER** necessary.

SECTION – I

40 Marks

		Co	BL
Q1	Explain different levels of organization and their information flow with a suitable example.	(8) CO1	2
Q2	Explain the types of networks used in organizations and the security problems that can happen with each.	(8) CO2	2,3
Q3	Describe different types of threats (physical, technical, man-made) and illustrate with examples.	(8) CO2	2,3
Q4	Suppose a company implements a digital signature system. Analyze how the use of signature and verification keys ensures authenticity.	(8) CO3, CO4	4
Q5	Create a secure email system using S/MIME or PGP and explain how it keeps messages private and accurate	(8) CO3, CO4	5,6
Q6	Write Short Notes on ANY TWO	(8)	
	a) Characteristics of Information	CO1	1,2
	b) MIS	CO2	1,2
	c) DoS attack	CO3	1,2

SECTION – II

20 Marks

Q7	An IT company's employees often use personal devices for work. Evaluate the risks involved and recommend measures to align with the organization's information security policy.	(10)	CO5	5
Q8	Define cyber-crimes and explain their different categories with examples. Create an Incident Management Plan to reduce the risk of loss of information and unauthorized access.	(10)	CO6	2,6
Q9	An e-commerce company receives complaints about data misuse—design a customer communication regulation that promotes transparency and trust.	(10)	CO6	6

MASTER OF COMPUTER APPLICATIONS (CBCS - 2022 COURSE)
M.C.A. Sem-III ; WINTER: 2025
SUBJECT: SOFTWARE DESIGN PATTERNS

Day : Thursday
Date : 20/11/2025

W-26136-2025

Time : 10:00 AM-01:00 PM
Max. Marks : 60

NB :

1. Figures to the right indicate FULL marks.
2. Answer to both the sections should be written in the SAME answer book.
3. Section - II- Question 7 is COMPULSORY, it carries 10 marks. Attempt any ONE question from rest of the TWO questions in Section II, it carries 10 marks.
4. Section- I – Attempt any FIVE questions. Each question carries 08 marks.

SECTION - I

- | | |
|---|-------------|
| Q. 1 Discuss the importance of design patterns in software engineering. How do they promote reusability, scalability, and maintainability in system design? | CO1 BT2 (8) |
| Q. 2 Compare and contrast the Factory Method and Abstract Factory design patterns with suitable examples. | CO4 BT4 (8) |
| Q. 3 When to use flyweight design pattern? Explain it with intent, structure and role of each participants. | CO2 BT1 (8) |
| Q. 4 Explain how to apply Iterator design pattern to access elements of collection. | CO3 BT2 (8) |
| Q. 5 State the J2EE design patterns used in the Business Layer and explain any one of them | CO2 BT1 (8) |
| Q. 6 Attempt ANY TWO of the following: (Short Notes) | (4x2) |
| a) Decorator | CO1 |
| b) Template Method | CO1 |
| c) Mediator | CO1 |

SECTION - II

- | | |
|---|--------------|
| Q. 7 Analyse the use of the Prototype pattern improves efficiency and flexibility in a software system where we frequently creates objects that are expensive to initialize. | CO4 BT3 (10) |
| Q. 8 Critique on when to use Visitor design pattern. Evaluate its role with example. | CO2 BT5 (10) |
| Q. 9 Construct a design using Adapter design pattern for an application for a hotel booking system, Where the existing payment module expects all payment services to follow a standard interface. A new third-party payment gateway is introduced, but its API does not match the system's current payment interface. Analyse impact of using Adapter Design Pattern. Also Discuss the benefits this approach brings to maintainability, flexibility, and extensibility. | CO6 BT6 (10) |

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